Fletcher, Heald & Hildreth, P.L.C.
1300 North 17th Street 11th floor
Arlington VA 22209
703-812-0400 (voice)
703-812-0486 (fax)

MITCHELL LAZARUS
703-812-0440
LAZARUS@FHHLAW.COM

August 15, 2001

Ms. Magalie Salas, Secretary
Federal Communications Commission
445 12th Street SW
Washington DC 20554

Re: ET Docket No. 98-153 -- Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems
Ex Parte Communication

Dear Ms. Salas:

Pursuant to Section 1.1206(a)(2) of the Commission's Rules, on behalf of XtremeSpectrum, Inc., I am filing this letter electronically to report an oral ex parte communication in the above-referenced proceeding.

Yesterday, Martin Rofheart of XtremeSpectrum, Inc., Michele C. Farquhar, Esq., of Hogan & Hartson, L.L.P., and I met with Peter Tenhula of Chairman Powell's staff.

Mr. Rofheart summarized his company's views as expressed in prior filings in the proceeding. A copy of his presentation outline is attached.

If there are any questions about this filing, please call me at the number above.

Respectfully submitted,

Mitchell Lazarus
Counsel for XtremeSpectrum, Inc.

cc: Meeting participants

XtremeSpectrum Inc.

System Semiconductor Solutions for Embedded Wireless Multimedia Appliances

Federal Communications Commission
August 14, 2001

Company Overview

XtremeSpectrum Inc.

- **Founded Q4 ’98 by recognized experts in UWB technology and radar applications**
- **Management team on-board, with in-depth technology and business experience in communication IC industry (design, manufacture and marketing)**
- **Partners and customers include industry leaders in consumer electronics, computing and networking**
- **First generation product development nearing completion**
- **Headquartered in Vienna, VA with Silicon Valley office in Mountain View, CA**
  - Product launch tied to regulatory approval

Management Team

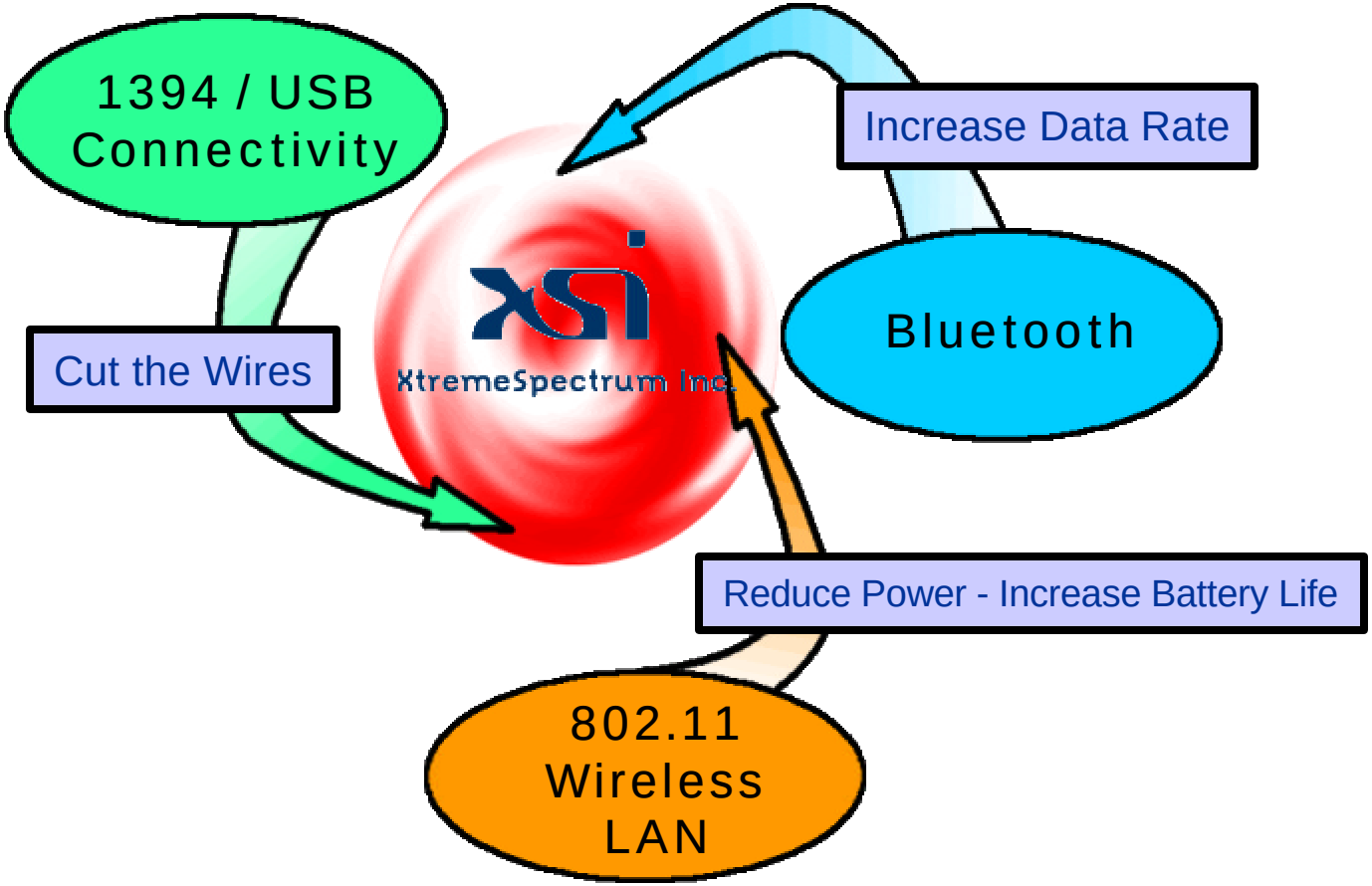
XtremeSpectrum Inc.

- **Martin Rofheart, Ph.D., Co-Founder and CEO**
  - *15 years technology industry experience including SMR Inc. (President) , Raytheon, Westinghouse*
- **John McCorkle, Co-Founder and CTO**
  - *20 years industry experience in DoD engineering, inventor and patent holder for ultra wideband SAR*
- **Raj Sengottaiyan, VP of Engineering**
  - *Over 20 years semiconductor industry experience including Fairchild, Impala Linear, and SUN. Strong knowledge in high performance process technologies*
- **Chris Fisher, VP of Sales and Marketing**
  - *12 years experience in marketing, sales, and product management for Radiata, Conexant, RF Micro Devices, and AMD*
- **Andrew Schneck, VP of Finance and Strategic Planning**
  - *15+ years experience in strategic consulting, new ventures, and business management including Bain & Company, and Monitor*

XtremeSpectrum *Simultaneously Delivers High Data Rate, Low Power Consumption, and Low Cost*

XtremeSpectrum Inc.

Reducing the Performance Differences between the Wireless and Wired Worlds for Consumer Media-Intensive Devices

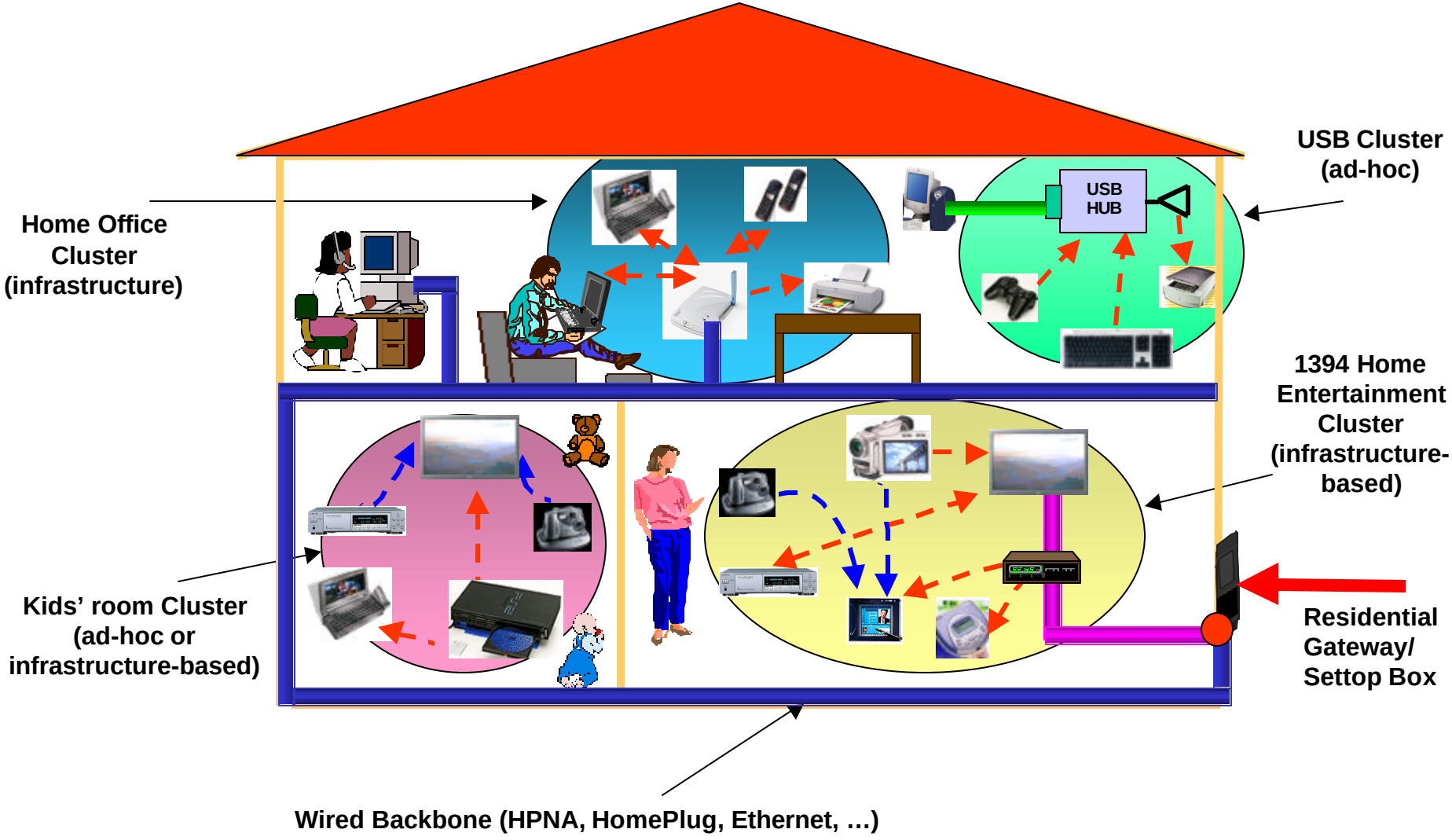


Applications:
Reducing the Rat's Nest of Wires

XtremeSpectrum Inc.

Our Vision: The Wireless Networked Home

XtremeSpectrum Inc.



UWB Versus Conventional Technologies

XtremeSpectrum Inc.

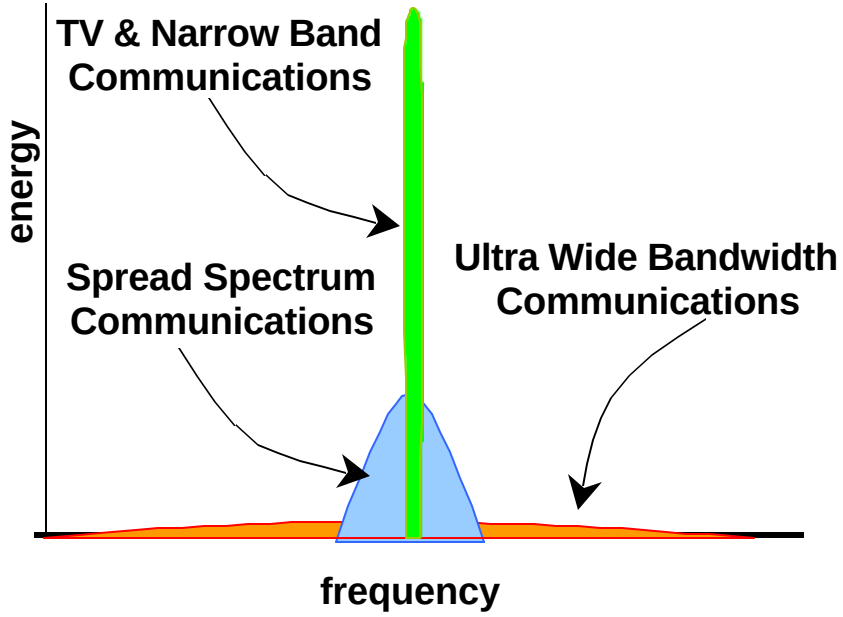
- **XtremeSpectrum UWB technology can *simultaneously* deliver:**
  - High data rate, low power consumption and low cost
- **Difference from 2.4 GHz and 5 GHz radios**
  - More robust performance for indoor wireless environment
  - Higher data rate (approximately 2x to 10x faster than W-LAN technologies, and 100x Bluetooth)
  - Power consumption that is amenable to battery powered handheld products (cellphone, PDA, digital camera)
  - High quality of service (QoS): multiple video and audio streams with wired quality
  - Signal processing functionality which is less complex, yielding lower cost to implement
- **UWB does not require dedicated spectrum**

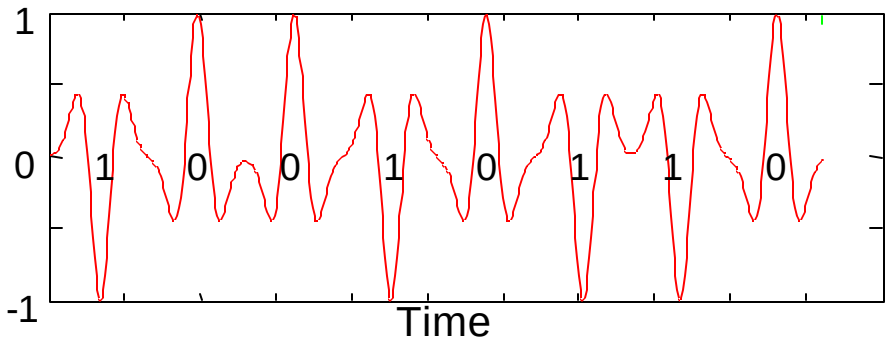
What is Ultra-Wideband?

XtremeSpectrum Inc.

- Ultra-Wideband (UWB) spreads a very low power signal across a wide swath of spectrum, diluting its energy to well below the detection threshold of conventional receivers

- UWB emits coded, picosecond-length pulses, spread over frequency and time, across existing frequency assignments

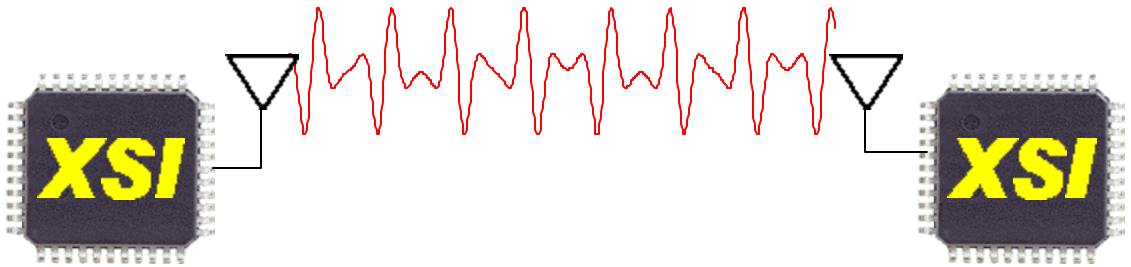




The XtremeSpectrum Ultra-Wideband Wireless Chipset

XtremeSpectrum Inc.

Everyday PC/laptop chipsets emit random, *unintentional* Ultra-Wideband signals - the wires on every PC board are antennas

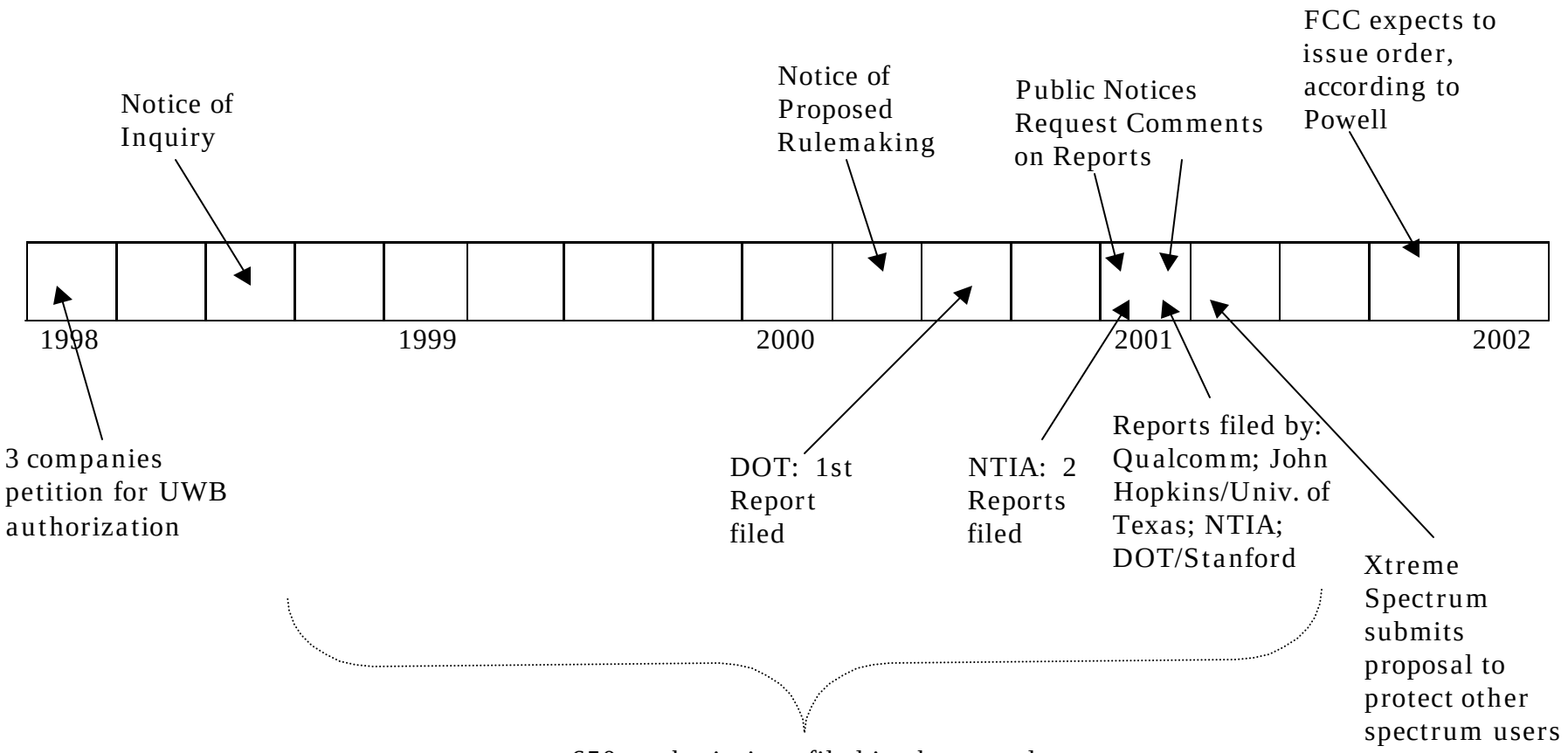


- **XSI radio chipsets transmit and receive intentional UWB signals, at the same low voltage as conventional CMOS chips, through an innovative antenna etched on the PC board**
- **Moore's Law Radio – Match to IC roadmap**
- **At sensitive frequencies, XtremeSpectrum chipsets will emit at levels far below the maximum for conventional PCs.**

FCC Review Has Been Lengthy and Thorough

XtremeSpectrum Inc.

Regulatory Timeline of the UWB Proceeding



The Record is Complete

XtremeSpectrum Inc.

- **Interested parties have filed nearly 700 comments and other submissions with the FCC**
- **Seven separate reports and studies have been submitted for public comment**
- **XtremeSpectrum has participated actively in this proceeding and has provided constructive proposals for increasing protections for GPS and other spectrum users**

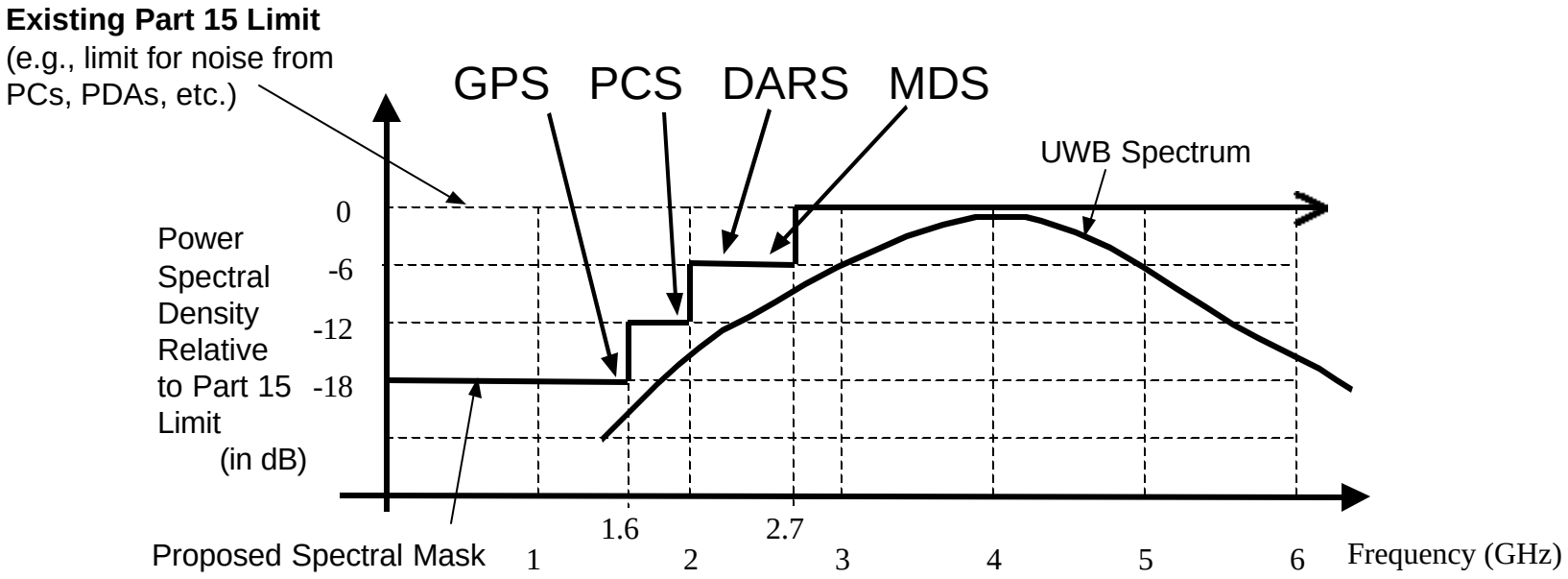
Interference Is Not an Issue with XtremeSpectrum's Proposals

XtremeSpectrum Inc.

- **XtremeSpectrum's proposal to limit interference**
  - a steep emission mask to limit emitted power in the more sensitive bands
  - a test to reduce spectral lines in the GPS band
  - indoor-only operation
- **Solves every interference question documented in the proceeding**
- **The fear that the aggregated emissions from a multitude of UWB devices will cause interference is unfounded**
  - Propagation losses block the extremely low transmit power
  - Signals attenuate much faster than they add up
- **UWB has no perceptible effect on the noise floor**

Proposed Spectral Mask Will Limit UWB Emissions in Sensitive Bands

XtremeSpectrum Inc.



- **Mask limits UWB emissions to levels below those in NPRM. In GPS band, power is limited to one-billionth of 1 watt, representing 1/64th the limit for digital devices**

- **Mask is consistent with GPSIC requests in other proceedings**

Adopting XtremeSpectrum's Test for Spectral Lines Will Protect GPS

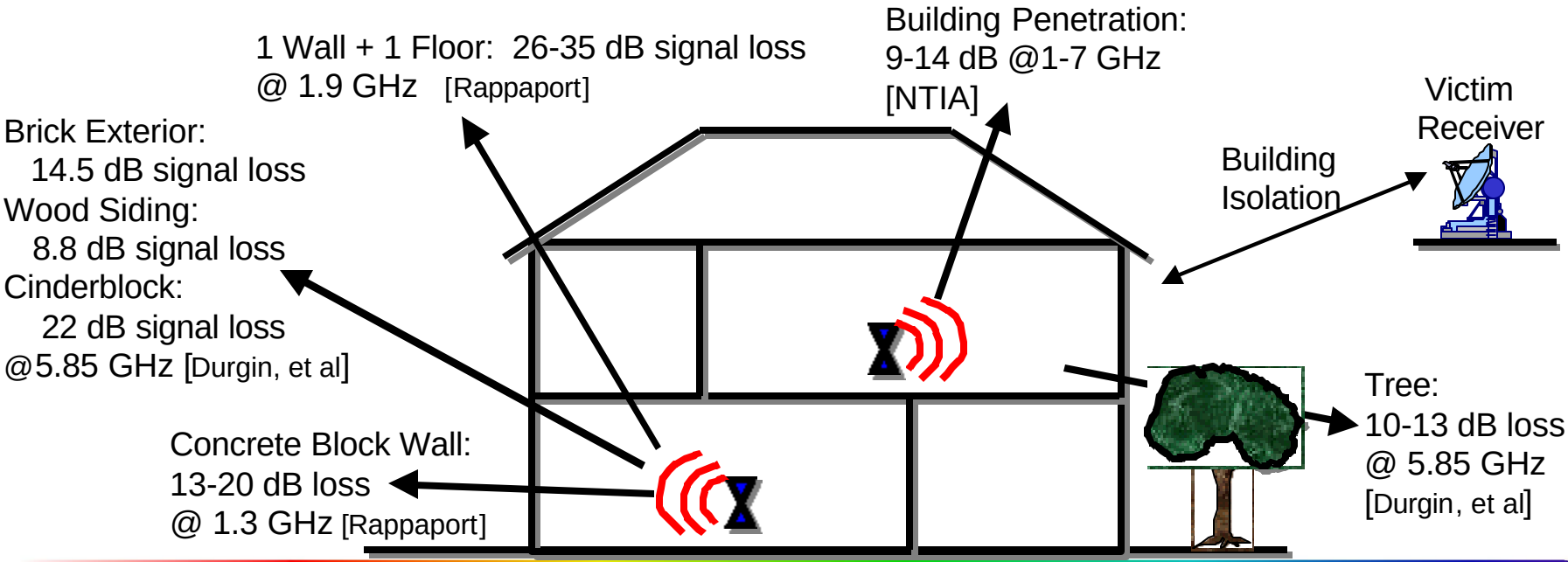
XtremeSpectrum Inc.

- **XtremeSpectrum accepts and endorses the GPSIC test for spectral lines, as supported by NTIA and RTCA studies**
- **A device that passes the spectral line test has shown it does not generate spectral lines that could interfere with GPS**
- **The NTIA and FCC should follow their traditional approach in setting performance criteria and allow industry to decide how best to meet the criteria**

Proposed Indoor Usage Restriction Expands the Safety Margin

XtremeSpectrum Inc.

- **Indoor-only restriction provides protection for other systems**
  - Multiple studies show that buildings reduce signals emitted to the outdoors by at least 87%, and often much more
- **Indoor use restriction eliminate the likelihood of interference to GPS and other users**
- **Even glass exterior buildings reduce signals by 87%**
- **Indoor GPS-based E911 operations will not be hindered**



Aggregation Effects are Not a Threat

XtremeSpectrum Inc.

- **Every study shows that UWB signals do not aggregate**
- **This is because propagation losses block the very low power UWB transmissions**
  - The signals attenuate much faster than they add up
- **UWB has no perceptible effect on the noise floor**

Even if all the TVs in a hotel are playing, at most you might barely hear your immediate neighbors', but you don't hear any others -- and you certainly don't hear any of these TVs from anywhere outside the hotel, or from inside the hotel next door.

XtremeSpectrum Summary

XtremeSpectrum Inc.

- **UWB delivers high data rate and low power consumption at low cost to enable wireless media-intensive consumer electronics applications. The public must be given the opportunity to benefit from this technology.**
  - Expeditious FCC action will ensure US leadership in this innovative wireless technology.
- **XtremeSpectrum has addressed and countered every argument opposing UWB**
  - Interference – XtremeSpectrum's proposed emissions limits, spectral lines test and indoor-only restriction will ensure NO harmful interference to other devices.
  - Aggregation – UWB signals do not aggregate and do not raise the noise floor.
- **XtremeSpectrum's proposals are all anticipated by the FCC in the NPRM and do not require a Further Notice**.
- **After 3 years, 7 studies and nearly 700 submissions, the FCC has a complete record and should move promptly to authorize UWB.**